

## CLAIMS

What is claimed is:

1. A computing system comprising:

data storage, the data storage including:

5 a plurality of storage segments, the plurality of storage segments having different data protection levels;  
wherein data are stored in the plurality of storage segments based on data reliability requirements so that data with lower data reliability requirements are stored in a storage segment having a lower data protection level, and data with higher data 10 reliability requirements are stored in a storage segment having a higher data protection level.

2. A computing system as in claim 1 wherein data reliability requirements for the data are determined based on resulting semantic degradation resulting from errors

15 in the data.

3. A computing system as in claim 1 wherein different data protection levels are achieved using varying percentages of redundant data being stored with the data.

20 4. A computing system as in claim 1 wherein different data protection levels are achieved using different types of storage media.

5. A computing system as in claim 1 wherein different data protection levels are achieved using different storage areas within a single storage medium.

6. A computing system as in claim 1 wherein different data protection levels  
5 are achieved using both varying percentages of redundant data being stored with the data, and using different types of storage media.

7. A computing system as in claim 1 wherein for each data field a segmentation datum is stored indicating in which data segment the data field is stored.

10 8. A computing system as in claim 1 wherein for each data field a segmentation datum is stored indicating in which data segment the data field is stored, the segmentation datum including:

15 a storage segment index; and,  
a bit count.

9. A computing system as in claim 1 wherein for each data field to be stored, an associated field sensitivity level indicates data reliability requirements for the data field.

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10. A data storage system, the storage system comprising:

a plurality of storage segments, the plurality of storage segments having different data protection levels; and,

a controller, the controller storing data in the plurality of storage segments based on data reliability requirements so that data with lower data reliability requirements are stored in a storage segment having a lower data protection level, and data with higher data reliability requirements are stored in a storage segment having a higher data protection level.

11. A data storage system as in claim 10 wherein data reliability requirements for the data are determined based on resulting semantic degradation resulting from errors in the data.

12. A data storage system as in claim 10 wherein different data protection levels are achieved using varying percentages of redundant data being stored with the data.

13. A data storage system as in claim 10 wherein different data protection levels are achieved using different storage areas within a single storage medium.

14. A data storage system as in claim 10 wherein different data protection levels are achieved using different types of storage media.

15. A data storage system as in claim 10 wherein different data protection levels are achieved using both varying percentages of redundant data being stored with the data, and using different types of storage media.

5        16. A data storage system as in claim 10 wherein for each data field a segmentation datum is stored indicating in which data segment the data field is stored.

10        17. A data storage system as in claim 10 wherein for each data field a segmentation datum is stored indicating in which data segment the data field is stored, 10 the segmentation datum including:

      a storage segment index; and,  
      a bit count.

15        18. A data storage system as in claim 10 wherein for each data field to be stored, an associated field sensitivity level indicates data reliability requirements for the data field.

20        19. A method for storing data comprising the following step:  
          (a) storing the data in a plurality of storage segments, the plurality of storage segments having different data protection levels, including the following substep:  
            (a.1) storing the data in the plurality of storage segments based on data reliability requirements so that data with lower data reliability requirements are stored

in a storage segment having a lower data protection level, and data with higher data reliability requirements are stored in a storage segment having a higher data protection level.

5        20. A method as in claim 19 wherein in substep (a.1) data reliability requirements for the data are determined based on resulting semantic degradation resulting from errors in the data.

10      21. A method as in claim 19 wherein in substep (a.1) different data protection levels are achieved using varying percentages of redundant data being stored with the data.

15      22. A method as in claim 19 wherein in step (a) different data protection levels are achieved using different types of storage media.

23. A method as in claim 19 wherein in substep (a.1) different data protection levels are achieved using different storage areas within a single storage medium.

24. A method as in claim 19 wherein in step (a) different data protection levels are achieved using both varying percentages of redundant data being stored with the data, and using different types of storage media.

25. A method as in claim 19 wherein step (a) additionally comprises the following substep:

(a.2) storing a segmentation datum for each data field, the segmentation datum indicating in which data segment the data field is stored.

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26. A method as in claim 19 wherein step (a) additionally comprises the following substep:

(a.2) storing a segmentation datum for each data field, the segmentation datum indicating in which data segment the data field is stored, the segmentation datum including a storage segment index, and a bit count.

27. A method as in claim 19 wherein in step (a) for each data field to be stored, an associated field sensitivity level indicates data reliability requirements for the data field.